

Managing Extreme Events

(In an Uncertain World)

28 April 2016 • Amora Jamison Sydney



Actuaries
Institute





Stress & Scenario Testing in Capital Management

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CAPITAL CONTEXT

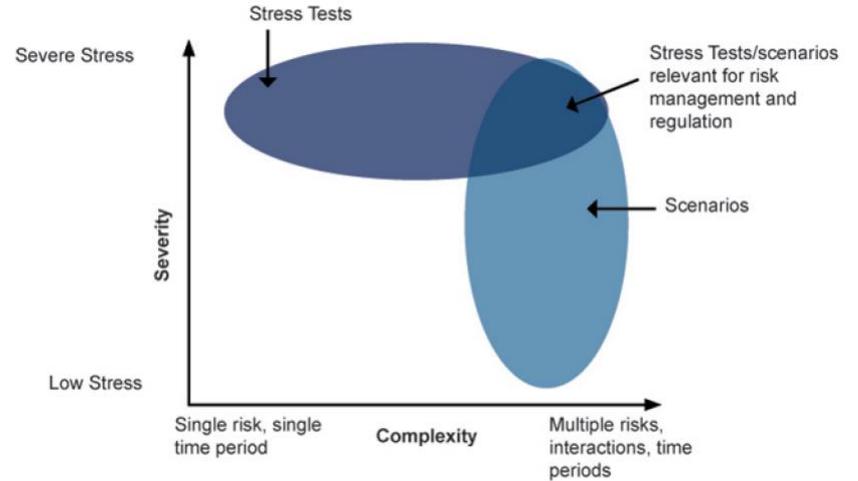
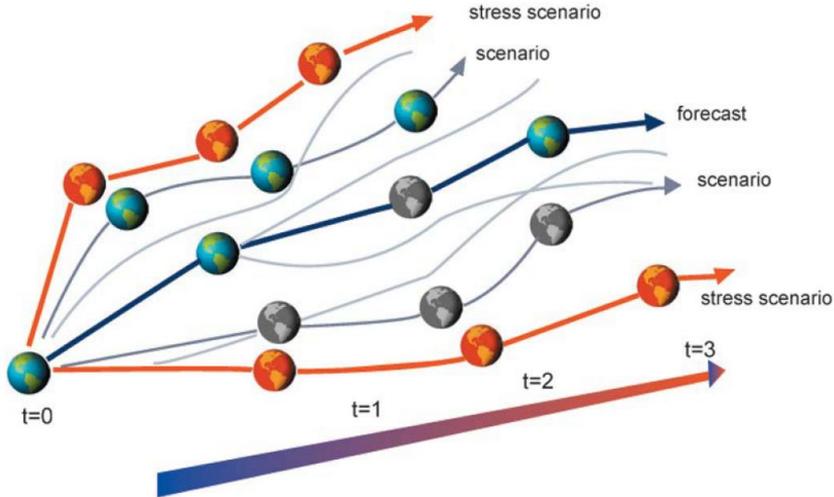
- **3 types**
 - **Prioritize and reduce (insurance COSO framework)**
 - Identify
 - Assess & Prioritise
 - Etc...
 - **Calculate and decide (investors & Insurers)**
 - Probability Decision tree's
 - Risk vs reward
 - **Anticipate and adapt (CEO's)**
 - Assess work case
 - Acceptable or can it be made so?



Source: Committee of Sponsoring
Organizations of the Treadway Commission
(COSO)



Stress and Scenario





Shell Scenarios

- For 40 years, Shell has drawn on its scenarios to enhance business decisions and its ability to respond to change.
- The scenarios ask “what if?” questions, helping to explore alternative views of the future. They consider long-term trends in Politics Economics Society Technology Environmental Legal (PESTEL) factors
- ***They recognise that people hold beliefs and make choices that lead to outcomes.***





Step away from the model...

- Recognise importance
- Identify sources
- Assess consequences
- Adjust or mitigate
- Alternative insights
- More than one model
- Scenarios
- Stress Testing
- Workshops
- Reverse Stress Testing

Management Action

**Our Disaster Recovery Plan
Goes Something Like This...**





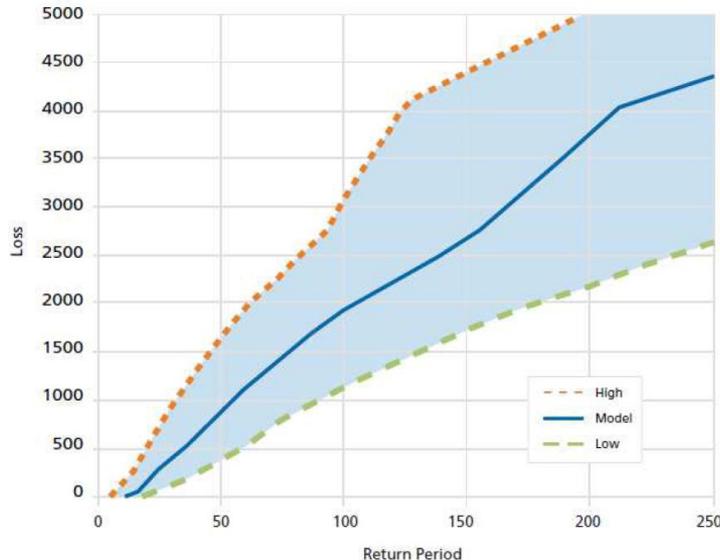
Realistic Disaster Scenarios

- Realistic Disaster Scenarios (RDS) are one way to quantify catastrophic loss potential and manage catastrophic exposure.
- Lloyds introduced them in 1995
- PRA (UK) has introduced 11 stress tests (including solar Flare/Cyber/Motor liability...)
- Solvency II guidelines for ORSA (published by EIOPA) has specified several RDS's
- APRA....



Realistic Disaster Scenarios -Property

FIGURE 1: CATASTROPHE MODELING: AN IMPRECISE SCIENCE

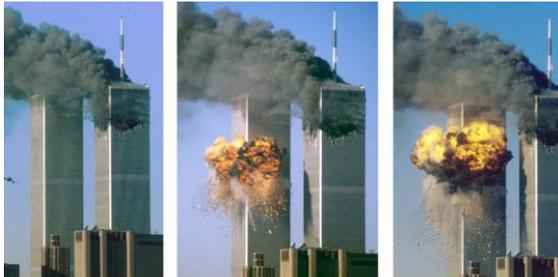


- 1 In 200 PML not an event
 - What events of this scale are plausible
 - Hence RDS (used at Lloyds since June 1994)
- Easy to Understand
 - Board and investor-friendly
- Qualitative and Quantitative Testing
 - Reinsurance arrangements
 - Capital impact



Actual Catastrophe's – WTC

- Many exposures
- Uncorrelated correlations
- Coverage complexity – events
- Inwards and outwards complexity



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Quantification can lead to action – prior to events

- *Avoid* - *change wordings, pull out...*
- *Mitigate* - *Prompt claims action, training..*
- *Reduce* - *sublimit, excesses...*
- *Transfer* - *Reinsurance*

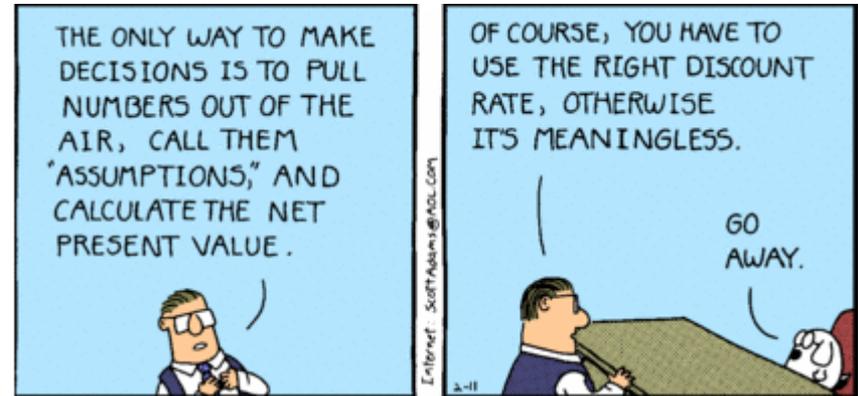
Capital is a last resort, best to avoid the situation than to buy yourself out of it...



How to Create a Scenario

FEYNMAN PROBLEM SOLVING ALGORITHM

1. Write down the problem.
2. Think very hard.
3. Write down the solution



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- Stress and scenario can complement other approaches
- Enhance understanding of why exposed to tail risk, due to detail in event
- Easily understood and *communicated*, increasing likelihood of action
- Can highlight “inconvenient truths”
- Can lead to pre event change
- A useful weapon in a risk officers armoury

